

## EFFECTIVENESS OF THE ELSA APPLICATION IN IMPROVING ENGLISH PRONUNCIATION IN INCLUSIVE EDUCATION

Dewi Untari\*<sup>1</sup>, Setyorini Dwi Agustini<sup>2</sup>, Siti Yuliana<sup>3</sup>  
Fakultas Ekonomi & Bisnis, Universitas dr Soebandi, Jember, Indonesia  
e-mail: [1dewiuntari@uds.ac.id](mailto:1dewiuntari@uds.ac.id), [2setyorini@uds.ac.id](mailto:2setyorini@uds.ac.id), [3sitiyuliana91@gmail.com](mailto:3sitiyuliana91@gmail.com)

DOI: <http://doi.org/10.59689/incare.v6i6.1366>

Received:  
February 07, 2026

Revised:  
March 20, 2026

Accepted:  
March 27, 2026

Published:  
April, 2026

\*Corresponding author

### Abstract

The development of digital technology has driven a transformation toward more interactive and adaptive learning. However, vocational high school students, particularly in inclusive schools, still face challenges in English pronunciation skills. The main problem addressed in this study is the limited use of instructional media and the diverse characteristics of students, including those with special educational needs, which affect the learning process. This study aims to (1) describe the implementation of the ELSA (English Language Speech Assistant) application in English learning and (2) analyze its effect on improving students' pronunciation skills at SMK Inklusi TPA Jember. This research employed Classroom Action Research (CAR) conducted in two cycles, consisting of planning, action, observation, and reflection stages. Data were collected through pre-test and post-test, as well as observations and interviews. The results showed a gradual improvement in students' average scores, from 62.3 in the pre-test to 71.0 in the first cycle post-test (an increase of 8.7 points or 14.0%), and further to 81.5 in the second cycle post-test (a total increase of 19.2 points or 30.8%), shifting from low to moderate and finally to good categories. Qualitative analysis revealed clear improvements from cycle I to cycle II, indicated by changes in student engagement from passive to active and independent, as well as more responsive and exploratory behavior toward practice and feedback. In addition, students' pronunciation became more accurate and structured, indicating that the use of the ELSA application is effective in enhancing both the process and outcomes of pronunciation learning.

**Keywords:** *Technology-based Learning; ELSA Application; English Pronunciation; Classroom Action Research; Inclusive Education.*



Copyright © 2026 The Author(s).

This article is distributed under the terms of the [Creative Commons Attribution-ShareAlike 4.0 International License](https://creativecommons.org/licenses/by-sa/4.0/) (CC BY-SA 4.0).

## Abstrak

*Perkembangan teknologi digital telah mendorong transformasi pembelajaran yang lebih interaktif dan adaptif. Namun, siswa Sekolah Menengah Kejuruan (SMK), khususnya di sekolah inklusi, masih menghadapi kendala dalam kemampuan pengucapan (pronunciation) bahasa Inggris. Permasalahan utama yang diangkat dalam penelitian ini adalah rendahnya pemanfaatan media pembelajaran serta keberagaman karakteristik siswa, termasuk adanya siswa berkebutuhan khusus (ABK), yang mempengaruhi proses pembelajaran. Penelitian ini bertujuan untuk (1) mendeskripsikan penerapan aplikasi ELSA (English Language Speech Assistant) dalam pembelajaran bahasa Inggris di kelas dan (2) menganalisis pengaruh penggunaannya terhadap peningkatan kemampuan pengucapan siswa SMK Inklusi TPA Jember. Penelitian menggunakan metode Penelitian Tindakan Kelas (PTK) yang dilaksanakan dalam dua siklus yang meliputi tahap perencanaan, pelaksanaan tindakan, observasi, dan refleksi. Data dikumpulkan melalui pre-test dan post-test serta observasi dan wawancara. Hasil penelitian menunjukkan peningkatan bertahap pada rata-rata skor siswa, yaitu dari 62,3 pada pre-test menjadi 71,0 pada post-test siklus I (kenaikan 8,7 poin atau 14,0% relatif), dan meningkat kembali menjadi 81,5 pada post-test siklus II (kenaikan total 19,2 poin atau 30,8% relatif), dari kategori kurang menjadi cukup dan akhirnya baik. Hasil analisis kualitatif menunjukkan adanya peningkatan yang jelas dari siklus I ke siklus II, ditandai dengan perubahan keterlibatan siswa dari pasif menjadi aktif dan mandiri, serta peningkatan respons terhadap latihan dan umpan balik yang lebih eksploratif dan responsif. Selain itu, kemampuan pengucapan siswa menjadi lebih tepat dan terstruktur, yang menunjukkan bahwa penerapan aplikasi ELSA efektif dalam meningkatkan kualitas proses dan hasil pembelajaran pengucapan secara bertahap.*

**Kata kunci:** *Pembelajaran Berbasis Teknologi; Aplikasi ELSA; Pengucapan Bahasa Inggris; Penelitian Tindakan Kelas; Sekolah Inklusi.*

## INTRODUCTION

The development of digital technology has driven a transformation in learning toward more interactive and adaptive approaches. In English language learning, pronunciation is a crucial aspect as it directly influences the clarity and effectiveness of oral communication (Chen, 2025; Gunawan et al., 2023; Rogti, 2025; Sun, 2023). Initial observations at SMK Inklusi TPA Jember indicate that students' average pronunciation ability remains relatively low, with a baseline score of 62.3. This finding reflects a gap between expected competencies and students' actual performance, particularly in the articulation of long vowels, complex consonants, and intonation patterns, which are essential components of phonetic accuracy (Riyani & Istiana Sari, 2020). This condition highlights the need for more effective and adaptive instructional interventions.

These challenges become more complex within inclusive school settings characterized by heterogeneous student populations, including students with special educational needs (SEN) who exhibit variations in cognitive abilities, linguistic competence, and information processing speed. In this context, pronunciation instruction requires pedagogical approaches that are not only adaptive but also capable of providing individualized, consistent, and continuous feedback (Navarro Rodríguez, 2025; Ping & Tao, 2025; Susilawati et al., 2024). However, current classroom practices remain largely conventional, focusing on repetitive drilling without adequate technological support to deliver specific and real-time corrective feedback, thus limiting the effectiveness of learning in accommodating diverse student needs (Stevani et al., 2023).

The utilization of artificial intelligence-based technology, such as the ELSA (English Language Speech Assistant) application, offers an alternative solution through its speech recognition feature, which enables immediate and personalized feedback. Previous studies have shown that the use of technology in language learning can enhance instructional effectiveness as well as students' pronunciation accuracy (Dwi Amanda et al., 2023). In addition, application-based learning has been proven to increase student engagement through more interactive and flexible learning experiences (Annisa et al., 2022; Anwar & Inayati, 2025; Maryani et al., 2025; Naik & Gajjar, 2023). Other studies indicate that AI-based technology can improve phonetic accuracy through automated error detection (Anes et al., 2023), while Classroom Action Research (CAR) is effective in improving instructional practices through continuous reflective cycles (Silalahi et al., 2025).

However, most previous studies have focused on general educational contexts and have not specifically examined the integration of AI-based applications in pronunciation learning within inclusive school environments characterized by diverse student needs. Therefore, a research gap exists regarding how AI-based technology can be effectively implemented in inclusive learning contexts and the extent to which its use influences the improvement of students' pronunciation abilities (Untari et al., 2024).

From a language pedagogy perspective, effective pronunciation learning depends not only on the frequency of practice but also on the quality of feedback received by students in a direct and continuous manner. Technology-based approaches enable the creation of learning environments that provide instant correction of phonetic errors, allowing students to independently and repeatedly improve their pronunciation. This aligns with the concept of learner autonomy in language learning, which emphasizes the importance of active student involvement in managing their own learning processes (Stevani et al., 2023). Therefore, the

integration of technology such as the ELSA application functions not only as a learning tool but also as a means to develop learner independence in mastering English pronunciation.

On the other hand, the implementation of technology in inclusive education requires careful consideration of accessibility, instructional differentiation, and the sustainability of learning media. The technology used must be able to accommodate students with varying levels of ability, including those with special educational needs, through adaptive and responsive features. Research in inclusive education indicates that appropriate use of technology can help reduce learning disparities and enhance more equitable student participation (Sari et al., 2024). Therefore, it is essential to empirically examine how AI-based applications can be effectively implemented in inclusive classroom contexts.

Based on this gap, this study focuses on the implementation of the ELSA application in English language learning and its effect on improving students' pronunciation ability. Specifically, this study aims to (1) describe the process of implementing the ELSA application in pronunciation learning in inclusive classrooms, and (2) analyze its effect on improving students' pronunciation ability empirically.

The novelty of this study lies in the integration of artificial intelligence-based technology within an inclusive school context characterized by diverse student characteristics, as well as the use of Classroom Action Research (CAR) to optimize the learning process in an adaptive, reflective, and continuous manner. This study is expected to contribute theoretically to the development of technology-based language learning and practically by providing an effective and adaptive learning model to improve pronunciation skills in inclusive education settings (Susilawati et al., 2024).

## **RESEARCH METHODS**

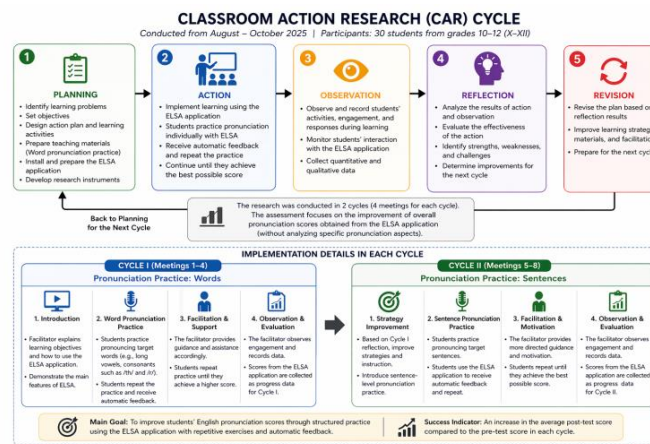
This study employed a Classroom Action Research (CAR) approach to improve students' English pronunciation through the implementation of the ELSA Speak application. This approach was selected because it enables gradual and reflective improvement through cyclical actions (Djafar, 2021). The study was conducted from August to October 2025 in two cycles, each consisting of planning, action, observation, reflection, and revision stages (Anggraini, 2022).

The participants were 30 students from grades 10–12 in an inclusive vocational school (SMK Inklusi TPA Jember). The class included students with special needs, characterized by diverse cognitive abilities, language processing

differences, and learning speeds (Karim et al., 2023). This condition required an adaptive learning approach supported by facilitators.

The data consisted of quantitative and qualitative data. Quantitative data were collected through pre-test and post-test scores to measure students' pronunciation improvement (Untari et al., 2024). The assessment was conducted using the ELSA Speak application, which automatically generates scores based on speech recognition analysis. This study focused on overall score improvement as the main indicator of students' pronunciation development. Qualitative data were obtained through observation and semi-structured interviews to explore student engagement and responses (Ramly, 2021).

The research procedure followed the CAR cycle illustrated in Figure 1, consisting of Planning, Action, Observation, Reflection, and Revision stages.



**Figure 1. Classroom Action Research Cycle**

In the planning stage, the research team prepared lesson plans, selected materials, set up the ELSA application, and developed research instruments. In the action stage, students practiced pronunciation independently using the application with facilitator guidance. The observation stage involved recording student engagement, participation, and responses. The reflection stage was used to analyze the results and determine necessary improvements, followed by the revision stage before proceeding to the next cycle (Indriani, 2022). The implementation was conducted in two cycles (8 meetings) with different focuses:

**a. Cycle I (Word-Level Practice)**

Students practiced pronunciation at the word level. They repeated target words using the ELSA application, received automatic feedback, and improved their scores through repetition. Facilitators provided basic guidance and support.

### **b. Cycle II (Sentence-Level Practice)**

The learning focus was upgraded to sentence-level pronunciation. Students practiced complete sentences and used feedback to improve their pronunciation. Facilitators provided more structured guidance and encouraged intensive practice.

This approach emphasizes repetitive practice and immediate feedback, which are effective in improving pronunciation skills (Ihsani et al., 2025). Quantitative data were analyzed using descriptive statistics by comparing mean pre-test and post-test scores in terms of gain and percentage improvement (Anes et al., 2023). Qualitative data were analyzed through data reduction, data display, and conclusion drawing to identify patterns of engagement and behavioral changes (Susilawati et al., 2024).

The integration of CAR with AI-based technology provides an adaptive learning approach. The automated feedback from the ELSA Speak application allows students to receive immediate and continuous correction, thereby supporting systematic improvement in pronunciation scores (Stevani et al., 2023).

## **RESULTS AND DISCUSSION**

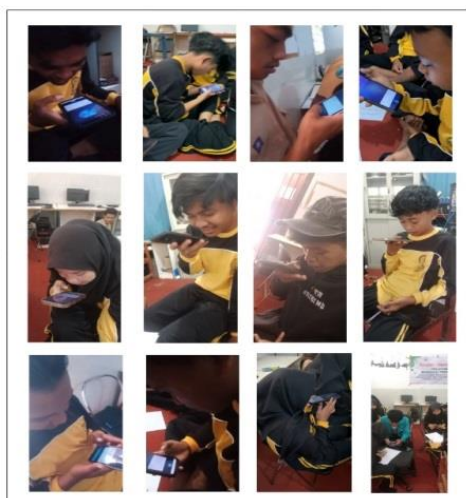
### **Results**

#### **The Implementation of the ELSA Application in Learning**

The implementation of the ELSA application was conducted through two cycles, each consisting of planning, action, observation, and reflection stages, in accordance with the principles of Classroom Action Research proposed by (Rohmah et al., 2023), which emphasize that instructional improvement is achieved through iterative reflective cycles.

In Cycle I, students were introduced to the use of the ELSA application as a pronunciation practice tool. The observation results indicated that most students were still in the adaptation phase, characterized by low engagement and a tendency to follow facilitator instructions without independent exploration. This condition reflects the initial stage of technology integration in learning, which requires an adjustment process, as stated by (Silalahi et al., 2025), who argue that technology implementation does not immediately result in optimal student engagement.

In Cycle II, improvements were made by increasing the intensity of practice and optimizing the use of application feedback. The observation results showed a significant improvement, where students became more active, independent, and enthusiastic during learning activities. This finding aligns with (Dwi Amanda et al., 2023), who state that digital learning applications enhance student engagement through interactive learning experiences.



**Figure 2.** Students’ Use of the ELSA Application in Cycle II

The figure illustrates students actively using the ELSA application during Cycle II. Students were seen engaging with their devices, practicing pronunciation, and repeating exercises based on the feedback provided by the application. This demonstrates an improvement in both engagement and learner autonomy compared to Cycle I. This is consistent with finding (Murdianti, 2024), who emphasize that interactivity in digital learning environments enhances the overall learning experience.

### Quantitative Data Analysis Results

**Table 1.** Distribution of Students’ Pronunciation Scores

Category	Score Range	Pre-test	Cycle I	Cycle II
Poor	< 70	21 students	10 students	2 students
Fair	70-79	7 students	12 students	8 students
Good	≥ 80	2 students	8 students	20 students
<b>Total</b>		<b>30</b>	<b>30</b>	<b>30</b>

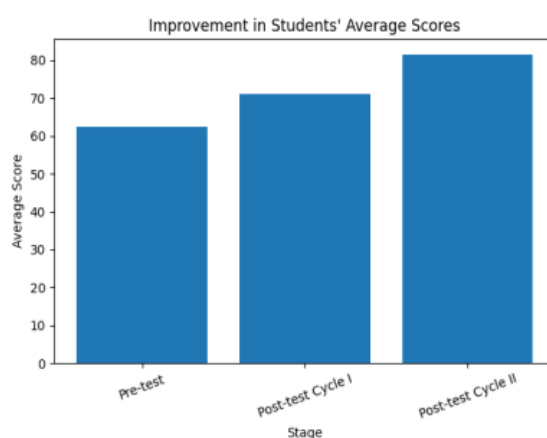
Table 1 shows a clear shift in students’ score distribution from the “poor” category toward the “fair” and “good” categories. The increasing number of students in the “good” category indicates an overall improvement in pronunciation skills. This supports (Hasibuan et al., 2024), who states that changes in score distribution reflect the development of learner competence.

**Table 2.** Improvement of Students’ Mean Scores

Stage	Mean Score	Increase	Percentage	Category
Pre-test	62.3	-	-	Poor

Stage	Mean Score	Increase	Percentage	Category
Cycle I Post-test	71.0	+8.7	14.0%	Fair
Cycle II Post-test	81.5	+19.2	30.8%	Good

Table 2 indicates a progressive increase in students' mean scores from the pre-test to Cycle II. This improvement demonstrates that the instructional actions implemented in each cycle had a positive impact on students' pronunciation skills. This finding is consistent with the principles of Classroom Action Research, which emphasize continuous improvement through cyclical processes (Norlaila & Hermina, 2025).



**Figure 3.** Students' Pronunciation Score Improvement

The graph shows a consistent upward trend in students' performance, indicating significant improvement after the intervention in Cycle II. This suggests that the use of the ELSA application effectively enhances pronunciation accuracy through immediate feedback-based learning.

### Qualitative Data Analysis Results

Qualitative data analysis was conducted to describe changes in students' learning behavior, engagement, and responses toward the use of the ELSA application.

#### a. Observation Results

The observation results revealed that in Cycle I, students were generally passive and unfamiliar with the ELSA application. However, in Cycle II, there was a noticeable improvement in engagement, where students became more active, independent, and enthusiastic during learning activities. This indicates that

technology-based learning can enhance student participation (Imansyah & Silviana, 2025).

### **b. Interview Results**

The interview results revealed that students responded positively to the use of the ELSA application in pronunciation learning. Most students stated that the application helped them identify pronunciation errors and allowed them to correct those errors independently through immediate feedback.

Some students' statements include:

*"This application helps because it corrects my pronunciation immediately, so I know my mistakes."*

*"I practice more often because I can see my pronunciation score."*

*"I keep repeating until I get a good score."*

These responses indicate that students not only receive feedback but also actively use it for repeated practice. This reflects an improvement in phonological awareness and the development of learner autonomy in the learning process.

Furthermore, students also reported that learning became more engaging and less monotonous compared to traditional methods. This supports the observation and quantitative findings that the use of the ELSA application positively influences students' engagement and motivation.

**Table 3.** Development of Qualitative Findings

No	Aspect	Cycle I	Cycle II
1	Engagement	Passive	Active and independent
2	Practice response	Follow instructions	Repeated practice
3	Pronunciation accuracy	Less accurate	More accurate
4	Feedback response	Beginning to understand	Responsive and applied

Table 3 illustrates a gradual behavioral change from Cycle I to Cycle II. This indicates that the learning process not only improves learning outcomes but also enhances the quality of students' learning behavior.

## **Discussion**

### **Implementation of the ELSA Application in Learning**

The findings show that the implementation of the ELSA application created a more interactive and adaptive learning environment. The improvement in student engagement from Cycle I to Cycle II indicates that technology integration enhances student participation in learning activities. This aligns with (Imansyah & Silviana, 2025) who emphasize that digital media improves interactivity in language learning.

### **The Effect on Students' Pronunciation Skills**

The increase in students' mean scores from 62.3 to 81.5 demonstrates that the ELSA application is effective in improving pronunciation skills. The 30.8% improvement indicates a significant impact of AI-based learning tools. This finding is consistent with Pasaribu et al. (2024), who state that artificial intelligence-based learning applications improve pronunciation accuracy through automated feedback mechanisms.

### **Changes in Students' Learning Behavior**

The study reveals a shift in students' learning behavior from passive learners to active and independent learners. Students were able to utilize feedback to repeatedly correct their pronunciation. This supports the concept of learner autonomy (Khulaifayah et al., 2025), which emphasizes the importance of independent learning in language acquisition.

## **CONCLUSION**

Based on the results of quantitative and qualitative analyses, the implementation of the ELSA application in English language learning shows an improvement in students' pronunciation skills from cycle I to cycle II. This improvement is indicated by a reduction in pronunciation errors and an increase in students' accuracy in producing English sounds after receiving immediate feedback from the application. These findings suggest that the use of artificial intelligence-based technology can support pronunciation practice more effectively and independently.

However, this study has limitations, namely differences in students' initial abilities that influenced the variation in improvement results, as well as students' confidence levels, which were not yet fully observed and measured in depth during the learning process.

In practical terms, the ELSA application can be utilized by teachers as a supporting tool for pronunciation practice, allowing students to practice independently with direct feedback, while teachers act as facilitators to strengthen the learning process. Future research is recommended to expand the focus to the analysis of English pronunciation errors using technology, so that it does not only concentrate on improvement outcomes but also provides a deeper identification of types of pronunciation errors through the use of applications or technology-based systems.

### **Acknowledgments**

The author would like to express sincere gratitude to Universitas dr Soebandi Jember for supporting the implementation of this research through a research grant program. Appreciation is also extended to SMK Inklusi TPA Jember for granting permission and facilitating the conduct of this study. The author further acknowledges the active participation of the students involved in this research. In addition, special thanks are conveyed to all parties, including colleagues and reviewers, who have provided valuable feedback and contributed to the writing and improvement of this manuscript.

### **REFERENCES**

- Anes, C. L. E., Wachyudi, K., & Pahlevi, M. R. (2023). Persepsi Siswa Terhadap Penggunaan Aplikasi ELSA Speak. *Jurnal Educatio FKIP UNMA*, 9(2), 1147–1152. <https://doi.org/10.31949/educatio.v9i2.3235>
- Anggraini, A. (2022). Improving students' pronunciation skill using ELSA Speak application. *Journey*, 5(1), 135–141. <https://doi.org/10.33503/journey.v5i1.535>
- Annisa, M. N., Puspita, D. R., & Magdalena, I. (2022). Analisis kesalahan pelafalan bahasa Inggris siswa sekolah dasar. *Journal of Educational Review and Research*, 5(1), 38–45. <https://doi.org/10.26737/jerr.v5i1.3300>
- Anwar, M. A., & Inayati, N. L. (2025). Gamification Of Islamic Education: Exploring The Role Of Wordwalls In Increasing Student Participation In Learning The Qur'an And Hadith. *Fikroh: Jurnal Pemikiran Dan Pendidikan Islam*, 18(2), 281–291. <https://doi.org/10.37812/FIKROH.V18I2.1898>
- Chen, Z. (2025). What shapes communicative adequacy in second language speaking performance? The contributions of complexity, accuracy, fluency, and pronunciation. *Vigo International Journal of Applied Linguistics*, 22, 65–90. <https://doi.org/10.35869/VIAL.V0I22.4882>

- Djafar, R. (2021). *Meningkatkan Kemampuan Speaking Siswa Kelas VIII MTsN 2 Tidore Melalui Metode Role-Play . ( Suatu Penelitian Tindakan Kelas )*. 7(2), 141–156.
- Dwi Amanda, Kenanga Safitri, Veri Ferdiansyah, & Nurbaiti Nurbaiti. (2023). Media Pembelajaran Ruang Guru Berbasis Teknologi Sebagai Inovasi Pembelajaran Era Revolusi Industri 4.0. *EBISMAN EBisnis Manajemen*, 1(4), 23–29.  
<https://doi.org/10.59603/ebisman.v1i4.225>
- Gunawan, Y. I., Syah, A., Rohim, A., & Nargis, N. (2023). Pelatihan Penggunaan Aplikasi ELSA (English Learning Speech Assistance) di Ban Huaysiet School Krabi Thailand. *Jurnal Pengabdian Masyarakat Saga Komunitas*, 3(1), 250–255. <https://doi.org/10.53801/jpmsk.v3i1.148>
- Hasibuan, N. H., Safitri, S., & Ariska, I. (2024). Teknik Pengolahan Skor Hasil Evaluasi. *Mudabbir: Journal Research and Education Studies*, 4(2), 460–475.  
<https://doi.org/10.56832/MUDABBIR.V4I2.646>
- Ihsani, P. F., Nanda, D. S., & Susanto, S. (2025). *Insights into Enhancing English Pronunciation and Vocabulary through Drilling and Word Repetition Techniques*. January, 35–47. <https://doi.org/10.69930/jsi.v2i1.276>
- Imansyah, M. N., & Silviana, U. (2025). Peran Teknologi dalam Meningkatkan Partisipasi Siswa Sekolah Dasar pada Proses Pembelajaran. *JADIKA: Jurnal Pendidikan Guru Sekolah Dasar*, 1(2), 10–17.  
<https://doi.org/10.71094/wiwara.v1i1.33>
- Indriani, L. (2022). Penerapan Problem Based Learning Untuk Meningkatkan Keaktifan dan Hasil Belajar Siswa Pada Pelajaran Bahasa Inggris. *Jurnal Ilmiah Pendidik Indonesia*, 1(1), 15–22. <https://doi.org/10.56916/jipi.v1i1.116>
- Karim, A., Qotrunnada, A., Hamzah, S., Maudyna, N., Prianti, J., & Sihole, I. G. (2023). Promoting Efl Students' Speaking Performance Through ELSA Speak : An Artificial Intelligence In English Language Learning. *JOLLT Journal of Languages and Language Teaching*, 11(4), 655–668.  
<https://doi.org/10.33394/jollt.v11i4.8958>
- Khulaifayah, Novitri, S., Niken, F., & Noviandhita, R. (2025). Pengenalan Konsep Autonomous Learning dalam Peningkatan Kompetensi Berbahasa Asing di Tingkat SMA (SMA IT Imam As-Syafii 2 Pekanbaru). *CEEJ (Community Education Engagement Journal)*, 07(01), 67–76.
- Maryani, I., Suyatno, Arfiani, I., Nizaar, M., Astuti, I. A. D., & Sulisworo, D. (2025). Gamified Mobile-Based Learning Approach: Efforts to Improve Students' Engagement and Learning Quality in Remote Schools in Indonesia. *Educational Process: International Journal (EDUPIJ)*, 15(2), 1–17.

<https://doi.org/10.22521/edupij.2025.15.179>

- Murdianti, W. (2024). Inovasi Media Pembelajaran Digital untuk Meningkatkan Minat Belajar di Era Digital. *Innovative: Journal Of Social Science Research*, 4(1), 13200–13212. <https://doi.org/10.31004/innovative.v4i1.16565>
- Naik, S., & Gajjar, K. (2023). Applying and Evaluating Engagement and Application-Based Learning and Education (ENABLE): A Student-Centered Learning Pedagogy for the Course Database Management System. *Journal of Education*, 203(2), 410–422. <https://doi.org/10.1177/002205742111032319>
- Navarro Rodríguez, J. (2025). *Voicing the Future: Enhancing Secondary Students' Pronunciation through Speechace*. <https://uvadoc.uva.es/handle/10324/80109>
- Norlaila, & Hermina, D. (2025). Penelitian tindakan kelas. *Jurnal Riset Multidisiplin Edukasi*, 2(6), 727–743. <https://doi.org/10.71282/jurmie.v2i6.539>
- Pasaribu, G. R., Arfianty, R., & Mubshirah, D. (2024). Integrasi Kecerdasan Buatan (Artificial Intelligence) Pada Pembelajaran Bahasa. *Educandumedia: Jurnal Ilmu Pendidikan Dan Kependidikan*, 3(2), 21–38. <https://doi.org/10.61721/EDUCANDUMEDIA.V3I2.511>
- Ping, L., & Tao, N. (2025). Innovative approaches to English pronunciation instruction in ESL environments: integration of multi-sensor detection and advanced algorithmic feedback. *Interactive Learning Environments*, 33(8), 5004–5024. <https://doi.org/10.1080/10494820.2025.2476718>
- Ramly, R. A. (2021). Penerapan Komunitas Belajar Melalui Aplikasi WhatsApp sebagai upaya Meningkatkan Aktivitas Belajar Sejarah. *Biormatika: Jurnal Ilmiah Fakultas Keguruan Dan Ilmu Pendidikan*, 7(2), 147–159. <https://doi.org/10.35569/biormatika.v7i2.1134>
- Riyani, R., & Istiana Sari, A. (2020). Penggunaan Podcast Untuk Memperbaiki Pengucapan (Pronunciation) Mahasiswa Dalam Berbicara Bahasa Inggris (Sebuah Penelitian Tindakan Kelas pada Mahasiswa Pendidikan Bahasa Inggris Semester I Kelas 01, FKIP UNISRI pada Tahun Akademik 2019/2020). *Research Fair Unisri*, 4(1). <https://doi.org/10.33061/rsfu.v4i1.3380>
- Rogti, M. (2025). Automatic pronunciation evaluation feedback and peer correction for shaping English pronunciation accuracy and interpersonal communication. *Innovation in Language Learning and Teaching*. <https://doi.org/10.1080/17501229.2025.2475931>
- Rohmah, P., Sari, A., & Setyowati, T. (2023). Optimizing Speaking Skills With Elsa Application : A Classroom Action Research In Seventh Grade Students Of SMP

- N 6 Semarang. *In Prosiding Seminar Nasional Pendidikan Profesi Guru*, 1(1), 931–936.
- Sari, B. K., Iqbal, M., Aulia, F., & Pranata, A. F. (2024). Optimalisasi Pembelajaran Bahasa Inggris Di MTsN 4 Aceh Utara Melalui Artificial Intelligence (AI). *Jurnal Pengabdian Sosial*, 2(1), 2354–2360. <https://doi.org/10.59837/5t1a8c06>
- Silalahi, D. E., Purba, L., Simanungkalit, R. H., & Siagian, A. F. (2025). Integrasi Artificial Intelligence (AI) dalam Penelitian Tindakan Kelas pada Pembelajaran Bahasa Inggris di SMA. *Bima Abdi: Jurnal Pengabdian Masyarakat*, 5(1), 59–68. <https://doi.org/10.53299/bajpm.v5i1.1267>
- Stevani, M., Priono, J., Daulay, D. E., & Rambe, S. (2023). Penggunaan Elsa Speak Untuk Meningkatkan Public Speaking Dan Pronunciation Bagi Siswa Smp Budi Murni 1 Medan. *Community Development Journal*, 4(2), 3791–3795.
- Sun, W. (2023). The impact of automatic speech recognition technology on second language pronunciation and speaking skills of EFL learners: a mixed methods investigation. *Frontiers in Psychology*, 14, 1210187. <https://doi.org/10.3389/fpsyg.2023.1210187>
- Susilawati, E., Rezeki, Y. S., Salam, U., & Tanjungpura, U. (2024). Workshop Pengembangan Media Pembelajaran Inovatif Berbasis Artificial Intelligence (AI) Bagi Guru-Guru Bahasa Inggris Madrasah Tsanawiyah Dan Madrasah. *Jurnal Abdimas Ilmiah Citra Bakti*, 5(3), 693–704. <https://doi.org/https://doi.org/10.38048/jailcb.v5i3.3732>
- Untari, D., Salim, H. A., Agustin, S. D., & Yuliana, S. (2024). Persepsi Guru dan Siswa dalam Sosialisasi Penggunaan Aplikasi Elsa Speak untuk Pembelajaran Pengucapan Bahasa Inggris di SMK Inklusi TPA Jember. *Jurnal Pendidikan Dan Pembelajaran Indonesia (JPPI)*, 4(3), 1154–1161. <https://doi.org/https://doi.org/10.53299/jppi.v4i3.712>